DNA extraction:

In DNA extraction what is the alcohol used for?

What step in DNA extraction encapsulated the lipids?

What step in DNA extraction precipitates the proteins?

Transformation:

What is the goal for transformation?

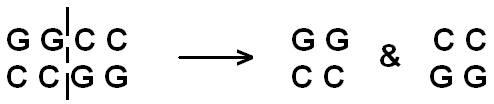
What does the CaCl do to the cell to help assist with DNA uptake?

What does the heat shock do to help assist with DNA uptake?

Restriction Enzyme section:

Restriction enzymes recognize and cut DNA at a specific sequence of nucleotides. This is known as the type of restriction enzyme.

HaeIII is what type of restriction enzyme, Why?

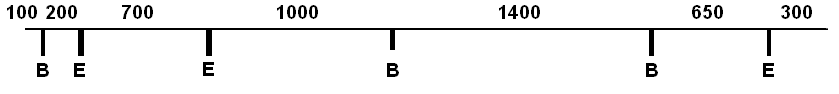


EcoRI is what type of restriction enzyme, Why?



 What type of restriction enzyme would you use to attach pieces of DNA together, Why?

 Refer to the segment of linear DNA shown below. Restriction sites for two enzymes, EcoRI (E) and BamHI (B), are shown. The distance between each restriction site is listed in base pairs. Results of a digestion are most often verified by running the fragments on a gel.



         How many fragments would result if the DNA above was digested with EcoRI? List the size of each resulting fragment. Draw the gel results for this digest.

         How many fragments would result if the DNA above was digested with BamHI? List the size of each resulting fragment. Draw the gel results for this digest.

         How many fragments would result from a double digest of EcoRI/BamHI? List the size of each resulting fragment. Draw the gel results for this digest.

         You experienced a pipetting mishap in the lab. You are not sure that your restriction enzyme mixture made it into your sample. Explain what you would see on a gel if restriction enzymes were not added and digestion was unsuccessful.

PCR and Gel Section

What is the purpose of a PCR reaction?

Why are primers necessary for the completion of a PCR reaction?

Explain the PCR process by putting the steps in order and then explain what is happening at each step. Include the enzyme activity and temperature ranges for the steps.

Word bank: DNA template, Primers, DNA polymerase, dNTP’s, Extension, Initialization, Annealing, Denaturation, Final Elongation, Hold

You need to find the base pair length of five lanes on each gel. (M lane is the DNA ladder)

